# Appendix B, Chapter 6
# Western Gray Squirrel

## 6.0 Western Gray Squirrel *(Sciurus griseus)*

The western gray squirrel (*Sciurus griseus*) is a Washington state threatened species and a Federal species of concern. Although the western gray squirrel was once abundant and widespread throughout oak-conifer forests (Figure 6-1), its range in Washington State has contracted to three disjunct populations. In the Wind River subbasin, population loss and fragmentation is largely due to disease (i.e., mange) associated with invasion of California ground squirrels and seasonal weather differences, which effect acorn production. Habitat loss and degradation is also a likely long-term factor. In the future, competition from the introduced eastern grey squirrel may also be an issue. The western gray squirrel is heavily associated with both ponderosa pine and Oregon white oak forests. In the Columbia River Gorge, Oregon white oak-ponderosa pine forests prevail. These forests follow stream drainages northward toward Goldendale and into Yakima County (Franklin and Dyrness 1973). A 1993 unpublished status review by the Washington Department of Wildlife (currently WDFW) found that the species was "in danger of extirpation from most of its range in Washington" (WDW 1993).

Western gray squirrels prefer habitat with the following characteristics (Foster 1992): contiguous canopy cover (mean = 60%); nest tree age (69-275 yr, mean = 108 yr); diameter at breast height (21-58 cm, mean = 40 cm); within 180 m (600 ft) of water; adequate food sources (acorns important in winter and early spring while pine cones and seeds in late summer and fall); and adequate habitat within home range (in Klickitat County 95% home ranges from 10-187 ha (mean 73 ha) for males and 3-44 ha (mean 21 ha) for females (Linders 2000)).

Western gray squirrels need a variety of mast-producing trees for food, cover and nesting sites (WDW 1993). The quality of the habitat is influenced by the number of mast-bearing tree species in and near the nest tree sites, the age and size of the trees, and proximity to permanent water (Cross 1969, Gilman 1986, Foster 1992). The western gray squirrel is usually associated with mature forests (Table 6-1), which provide the above-mentioned characteristics (WDW 1993).

Generally, the squirrels require trees of sufficient size to produce an interconnected canopy for arboreal travel (Foster 1992). Barnum (1975) observed no use of a lone pine tree that was full of green cones, conceivably because there was no travel cover available.

Since extinction or extirpation rates are partly area-dependent, the size of reserves, spacing of reserves, and location of dispersal corridors are important. Individual reserves must be large enough to ensure stability of the ecosystem and to provide a buffer from disturbance (Frankel and Soulé 1981). The western gray squirrel was probably more widely distributed in prehistoric times and has diminished recently along with the oak woodlands (Rodrick 1986). Presently, both the oak and the squirrel are at the northern extent of their ranges and are subject to increased pressure from a variety of environmental factors.

Most squirrels build round stick nests, approximately 60 cm (2 ft) in diameter, in pole to sawtimber-sized conifers, about one third of distance from the top of the tree and next to the trunk. The nests are lined with lichen, moss, and bark shavings (WDW 1993).

In a 2003 Status Review and 12-month finding for a petition to list the Washington population of the western gray squirrel (68 FR 34682), the USFWS concluded that listing was not warranted because the Washington population of western gray squirrels is not a distinct population segment and, therefore, not a listable entity. The Washington populations are discrete from the Oregon and California populations and are declining, but they are not “significant to the remainder of the taxon”. The U.S. Forest Service considers the squirrel to be a sensitive species, and uses it as an oak-pine community management indicator species in the Columbia River Gorge National Scenic Area.

Persistence of this species in the state of Washington will likely depend on state-level protections of oak-conifer habitats and voluntary efforts by landowners federal entities. The WDFW is in the process of writing a draft recovery plan, which is expected to be due out for public review in 2004. Anecdotal evidence suggests there was essentially no acorn crop in the Columbia Gorge in 1991, and an insignificant crop in 1992 (from WDW 1993), indicating that weather cycles associated with mast failures also may cause cyclical declines in squirrel populations.

**Figure 6-1. Historical distribution of western gray squirrels in Washington (adapted from Booth 1947, Ingles 1947, Source: WDFW 2004).**

**Table 6-1. Western gray squirrel association with wildlife habitats in the Wind River subbasin (IBIS 2004).**

| Wildlife-Habitat Type | Association | Habitat Requisite | Data Confidence | Comments |
|---|---|---|---|---|
| Mesic Lowlands Conifer-Hardwood Forest | Present | Feeds and Breeds | High | Uses this habitat where adjacent to Westside Oak and Dry Douglas-fir habitat. |